

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Erik Busking
Case: 11
Serial No.: 10/608,597
Filing Date: June 27, 2003
Group: 2618
Examiner: Tuan A. Tran

Title: Filter Switching System and Method

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby appeals the final rejection dated July 18, 2006, of claims 1 through 9 of the above-identified patent application.

REAL PARTY IN INTEREST

The present application is assigned to Agere Systems Inc., as evidenced by an assignment recorded on December 12, 1997 in the United States Patent and Trademark Office at Reel 8935, Frame 0150. The assignee, Agere Systems Inc., is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences.

STATUS OF CLAIMS

Claims 1 through 9 are presently pending in the above-identified patent application. Claims 1-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hornak et al. (United States Patent Number 5,678,222), and further in view of Lindqvist et al. (United States Patent Number 5,530,929). Claims 1, 6, and 7 are being appealed.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the final rejection.

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SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is directed to a communication system with variable filter bandwidth comprises: a first mixer circuit 20 disposed within a high frequency integrated circuit having input ports configured to receive a first communication signal and shift the frequency range of the communication signal to a first frequency range (page 5, lines 6-11); a second mixer circuit 22 disposed within the high frequency integrated circuit having input ports configured to receive the first communication signal and shift the frequency range of the first communication signal to a second frequency range (page 5, lines 6-11); an amplifier 28 coupled to the first and second mixer circuits for providing the first communication signal to the first and second mixer circuits; an activation circuit 18 coupled to the first and second mixer circuits so as to provide an activation signal that selectively activates any one of the mixer circuits 20, 22; first and second filter circuits 28, 30 each configured to receive a signal from the first and second mixer circuits, when a corresponding one of the mixer circuits is activated and to provide a signal to a low frequency integrated circuit (page 5, lines 12-16); and wherein when one of the mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal (32, 34, 36; page 5, line 17, to page 7, line 3).

Independent claim 6 is directed to, in a communication system, a method for routing a signal provided by a mixer circuit disposed in a high frequency integrated circuit to one

of a plurality of filter circuits, the method comprising the steps of: receiving a communication signal via a first amplifier 14 and providing the communication signal to a plurality of mixing circuits 20, 22 for shifting the frequency range of the communication signal (page 5, lines 6-11); providing an activation signal generated by an activation circuit 18 that selectively activates any one of the mixer circuits while remaining mixer circuits does not generate an output voltage signal; and coupling a plurality of filter circuits 28, 30 to the mixer circuits 20, 22 such that each of the filter circuits is configured to receive a signal from a corresponding mixer circuit, when the corresponding mixing circuit is activated and to dispense a signal to a low frequency integrated circuit (page 5, line 17, to page 7, line 3).

Claim 7 is directed to a method wherein the step of shifting the frequency range further comprises the step of shifting the frequency range via each mixer circuit to substantially the same frequency range (page 6, lines 10-12).

STATEMENT OF GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hornak et al., and further in view of Lindqvist et al.

ARGUMENT

Independent Claims 1 and 6

Independent claims 1 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hornak et al., and further in view of Lindqvist et al. Regarding claim 1, the Examiner asserts that Hornak discloses a first mixer circuit 123, 127, 133 ...a second mixer circuit 123, 127...wherein when one of the mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal (FIGS. 5A, 12, and 18; col. 9, lines 36-65; col. 12, lines 29-64; col. 18, line 44, to col. 19, line 10). The Examiner acknowledges that Hornak does not mention an amplifier coupled to the first and second mixer circuits for providing the first communication signal to the first and second mixer circuits, but asserts that a receiver having an

amplifier coupled to a mixer circuit for providing amplified communication signal to the mixer circuit is common in the art as shown by Lindqvist (FIG. 2).

Appellant notes that, in the figures cited by the Examiner, Hornak discloses a *single mixer 123*. Contrary to the Examiner's assertion, Hornak teaches that element 127 is a *local oscillator* and element 133 is a *phase shifter*. Thus, Hornak does **not** disclose or suggest a second mixer circuit.

Appellant also notes that, although Lindqvist discloses two mixers 11 and 11', Lindqvist does not disclose or suggest that, *when one of the mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal*. Independent claim 1 requires wherein *when one of said mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal*. Independent claim 6 requires *selectively activating any one of said mixer circuits while remaining mixer circuits does not generate an output voltage signal*.

Thus, Hornak et al. and Lindqvist et al., alone or in any combination, do not disclose or suggest wherein when one of said mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal, as required by independent claim 1, and do not disclose or suggest selectively activating any one of said mixer circuits while remaining mixer circuits does not generate an output voltage signal, as required by independent claim 6.

Claim 7

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Hornak et al., and further in view of Lindqvist et al. In particular, the Examiner asserts that Hornak discloses the limitation of claim 7 (col 9, lines 62-65).

Appellant notes that, in the text cited by the Examiner, Hornak discloses that "the phase shifter and oscillator may be combined in a single quadrature oscillator circuit that provides two signals of the same frequency but with a phase difference of 90 degree." (Col. 9, lines 62-65.) Appellant, however, could find no disclosure or suggestion of wherein the step of shifting the frequency range further comprises the step of shifting *the frequency range via each*

mixer circuit to substantially the same frequency range. Independent claim 7 requires wherein said step of shifting the frequency range further comprises the step of shifting *the frequency range via each mixer circuit to substantially the same frequency range.*

Thus, Hornak et al. and Lindqvist et al., alone or in any combination, do not disclose or suggest wherein said step of shifting the frequency range further comprises the step of shifting the frequency range via each mixer circuit to substantially the same frequency range, as required by claim 7.

Dependent Claims 2-5 and 7-9

Dependent claims 2-5 and 7-9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hornak et al., and further in view of Lindqvist et al.

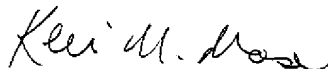
Claims 2-5 and 7-9 are dependent on claims 1 and 6, respectively, and are therefore patentably distinguished over Hornak et al. and Lindqvist et al. (alone or in any combination) because of their dependency from independent claims 1 and 6 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

Conclusion

The rejections of the cited claims under section 103 in view of Hornak et al. and Lindqvist et al., alone or in any combination, are therefore believed to be improper and should be withdrawn. The remaining rejected dependent claims are believed allowable for at least the reasons identified above with respect to the independent claims.

The attention of the Examiner and the Appeal Board to this matter is appreciated.

Respectfully,



Date: December 13, 2006

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APPENDIX

1. A communication system with variable filter bandwidth comprises:

a first mixer circuit disposed within a high frequency integrated circuit having
5 input ports configured to receive a first communication signal and shift the frequency range of
said communication signal to a first frequency range;

a second mixer circuit disposed within said high frequency integrated circuit
having input ports configured to receive said first communication signal and shift the frequency
range of said first communication signal to a second frequency range;

10 an amplifier coupled to said first and second mixer circuits for providing said first
communication signal to said first and second mixer circuits;

an activation circuit coupled to the first and second mixer circuits so as to provide
an activation signal that selectively activates any one of the mixer circuits;

first and second filter circuits each configured to receive a signal from said first
15 and second mixer circuits, when a corresponding one of said mixer circuits is activated and to
provide a signal to a low frequency integrated circuit; and

wherein when one of said mixer circuits is activated, the remaining mixer circuit
does not generate an output voltage signal.

20 2. The invention in accordance with claim 1 wherein said first and second frequency
range are substantially the same.

3. The invention in accordance with claim 1 wherein said filter circuits are bandpass
filters.

25 4. The invention in accordance with claim 3 wherein the frequency characteristics of
said bandpass filters are different from each other.

5. The invention in accordance with claim 4, wherein the termination impedance of the output stage of each of said mixer circuits substantially matches the termination impedance of the input stage of each one of said bandpass filters.

5 6. In a communication system, a method for routing a signal provided by a mixer circuit disposed in a high frequency integrated circuit to one of a plurality of filter circuits, said method comprising the steps of:

receiving a communication signal via a first amplifier and providing said communication signal to a plurality of mixing circuits for shifting the frequency range of said communication signal;

10 providing an activation signal generated by an activation circuit that selectively activates any one of said mixer circuits while remaining mixer circuits does not generate an output voltage signal; and

coupling a plurality of filter circuits to said mixer circuits such that each of said filter circuits is configured to receive a signal from a corresponding mixer circuit, when said corresponding mixing circuit is activated and to dispense a signal to a low frequency integrated circuit.

7. The method in accordance with claim 6 wherein said step of shifting the frequency range further comprises the step of shifting the frequency range via each mixer circuit to substantially the same frequency range.

8. The method in accordance with claim 7 further comprising the step of bandpass filtering said signal provided by said activated mixer circuit via a corresponding one of said filter circuits.

9. The invention in accordance with claim 8, further comprising the step of substantially matching the termination impedance of the output stage of each of said mixer circuits with the termination impedance of the input stage of each one of said bandpass filters.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to § 1.130, 1.131, or 1.132 or entered by the Examiner and relied upon by appellant.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 CFR 41.37.